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DEPARTMENT OF HEALTH & HUMAN SERVICES Public Health Service

Centers for Disease Control
and Prevention (CDC)
Atlanta GA 30333

March 08, 2007

Re: Amendment Request for Materials License No. 10-06772-01

03004001

U.S. Nuclear Regulatory Commission
Licensing Assistance Team
Division of Nuclear Materials Safety
Region I
475 Allendale Road
King of Prussia, PA 19406

RECEIVED
REGION 1
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Dear Sir,

In 1999, the Centers for Disease Control and Prevention (CDC), National Center for Environmental Health was given a mandate under the Presidential Bioterrorism Initiative to accomplish a mission of preparedness for rapid response in assessment of public exposure to radionuclides that would conceivably be released into the environment in such situations as a small scale nuclear terrorist event or a nuclear energy facility accident.

Additionally, according to the National Response Plan, the Department of Health and Human Services (HHS) and the CDC roles are defined in the Emergency Support Function #8 – Public Health and Medical Services Annex (ESF #8 Annex). In the ESF #8 Annex of the National Response Plan, the CDC is designated as the primary HHS Agency to provide assistance in assessing health and medical effects of radiological, chemical, and biological exposures on the general population and on high-risk population groups; conduct field investigations, including collection and analysis of relevant samples; advise on protective actions related to direct human and animal exposure, and on indirect exposure through radiologically, chemically, or biologically contaminated food, drugs, water supply, and other media; and provide technical assistance and consultation on medical treatment and decontamination of radiologically, chemically, or biologically injured/contaminated victims. Additionally, in the Nuclear/Radiological Incident Annex of the National Response Plan, the CDC is designated as the primary HHS Agency responsible for managing long-term public monitoring and supporting follow-on personal data collection, collecting and processing of blood samples and bodily fluids/matter samples, and providing advice concerning medical assessment and triage of victims. Also, the HHS Nuclear/Radiological Terrorism Concept of Operations Plan states that the CDC has the responsibility to rapidly evaluate human exposure to a radiological event. In each of these documents, the CDC is designated as the Primary Agency responsible for assessing population exposure to radionuclides by collecting and analyzing human blood samples and/or bodily fluids/matter samples.

We herein request amendment of our present license to include an increase in the possession

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limits for Americium 241, Cesium 137, and Cobalt 60 (from 1.0 milliCurie to 2.0 milliCuries for each radionuclide); an increase of Strontium 90 (from 0.1 milliCurie to 2.0 milliCuries); and an increase of Plutonium 239 (from 0.01 microCuries to 1.0 milliCurie). We are requesting an increase in the possession limits of these radionuclides because the current possession limits are not adequate to conduct the required radioanalytical method development. They are not adequate because there are six methods that have some overlap of nuclides analyzed: Ion Chromatography High Resolution Inductively Coupled Plasma Mass Spectrometer (IC-MS-HR-ICP-MS), Inductively Coupled Plasma Mass Spectrometer (ICP-MS), High Purity Germanium Gamma Spectrometry (HPGe), Sodium Iodide Well Detector Gamma Spectrometry (NaI), Alpha Spectrometry, Alpha/Beta Low Level Liquid Scintillation (LS). Since each individual technique is unique it requires its calibration and quality control materials to be distinctive to each method. Due to the incompatibility of the radionuclide solutions we require increased levels to accommodate the methods that are currently being developed and to maintain the status quo regarding calibration materials. In addition, there are currently three intercomparison programs to test proficiency in measuring specified radionuclides. This also presents the same overlap situation with regards to license possession limits.

We also request the following radioactive materials be added to our license with the specified possession limits: Radium 226 (2.0 milliCuries), Radium 228 (1.0 milliCurie), Thorium 228 (1.0 milliCurie), Thorium 230 (1.0 milliCurie), Polonium 209 (1.0 milliCurie), Polonium 210 (1.0 milliCurie), Curium 244 (1.0 milliCurie), and Californium 252 (1.0 milliCurie). Additionally, since Source Uranium and Source Thorium are naturally occurring radioactive materials, and therefore, are not federally regulated radionuclides, we request that they be removed from our license.

Approval of this license amendment request will allow the CDC to continue to develop rapid radioanalytical methods for assessing low-level, non-occupational exposures. The development of these analytical methods will enable the CDC to accurately detect and measure low-levels of these radionuclides present in human blood, feces and/or urine and provide analytical results within 24 to 48 hours for hundreds of individuals. The CDC will serve as the center for diagnostic analysis of human blood, feces and/or urine samples for the presence of abnormal levels of radioactive materials in the event of a radiological incident resulting in the potential radiation exposure or contamination to a population group. Such rapid assessment is necessary to help health care providers, the CDC, HHS, the NRC, law enforcement agencies, and community leaders to assess the extent of radiological exposures and determine the appropriate medical management and treatment. Additionally, having the ability to make an assessment of low-level, non-occupational exposures from these radionuclides will provide the CDC the capability to be able to determine reference levels of various radionuclides in the non-exposed population and suggest the source of the radionuclide exposure.

We have for several years monitored ^{238}U in urine (using natural or depleted source uranium for calibration) as one of the toxic metals on our National Health and Nutrition Examination Survey (NHANES) list and we have assessed ^{235}U and ^{232}Th exposure (using source uranium and thorium for calibration) from time to time. We are currently involved in method development for plutonium measurements in urine. The purpose of possession and use of the possession limit increases and the additional radionuclide, identified in Table 1, is dilution for sensitive analytical

instrument calibration standards and quality control materials for exposure assessment and research and development as defined under 10 CFR 30.4. We have signed an Interagency Reimbursable Agreement with Los Alamos National Laboratories (LANL) (Appendix C), wherein LANL will provide pre-diluted solutions (as aqueous solutions and/or spiked urine) to concentrations specified in the attached agreement; thus no solid metal, powder, or concentrated samples will be handled at our facility. We also have an Interagency Reimbursable Agreement with Oak Ridge National Laboratory (ORNL) (Appendix D), wherein ORNL will supply spiked human urine. We also have an Interagency Reimbursable Agreement with Sandia National Laboratory (SNL) (Appendix E), wherein SNL will provide the CDC personnel on-site training on the theories of alpha/beta discrimination and calibration techniques Radiation Protection Sample Diagnostics (RPSD) program at SNL utilizes.

The possession limits requested in Table 1 are sufficient for our current needs due to the high sensitivity of our instrumentation (presently high resolution inductively-coupled plasma-mass spectrometers). Table 2 includes all nuclides for which we presently have a general license, as well as the activity increases, the additions listed above, and calculations of appropriate decommissioning fund levels, for which CDC will provide a Statement of Intent. Our analysis of the financial assurance requirements in accordance with 10 CFR Parts 30, 40, and 70 indicates that the total amount of funds required with the inclusion of the additional radionuclides is $225,000. In our letter of July 28, 2006 (Appendix B), we provided a Statement of Intent for $225,000 in funds.

Though the above requested quantities are small, we have planned and initiated the following steps to adapt our radiation safety program to the addition of the requested nuclides:

1. Facility changes include the construction of Building 110. Building 110 employs cardkey controlled access to the building entrance, the laboratory corridors, and the clean rooms (Rooms 4202, 4207, and 5209), just as in Building 103 (Rooms 1103, 1117, and 1202). The additional radionuclide solutions will be stored and used in these two buildings. The radionuclides used in these laboratories and stored in the refrigerator/freezer rooms will be locked and/or secured via the three levels of cardkey access authorization required for entry.

2. Currently, the equipment that is involved in the method development, which will also be used with the additional nuclides are two Ion Chromatography High Resolution Inductively Coupled Plasma Mass Spectrometers (IC-HR-ICP-MS), four Inductively Coupled Plasma Mass Spectrometers (ICP-MS), two High Purity Germanium Gamma Spectrometers (HPGe), sixteen Sodium Iodide Well Detector Gamma Spectrometers (NaI), eight Alpha Spectrometers, and one Alpha/Beta Low Level Liquid Scintillation Counter (LS).

3. Physical security measures include total enclosure of the CDC site by fence, security guarded access gates, and access only with proper identification card and vehicle registration. Additionally, Buildings 103 and 110 wherein the additional radionuclides will be housed is equipped with cardkey controlled access to the Buildings and cardkey controlled access to the specific laboratories wherein the additional radionuclides will be used. Locks are and will continue to be placed on containers used to store the radioactive solutions when not in use.

4. Materials receipt and accountability will initiate with receipt and contamination analysis by the Radiation Protection Section. Both the Radiation Protection Section and radiation workers maintain a receipt log and disposal log, while the radiation workers also maintain the utilization log, which are used for material accountability. On a monthly schedule the Radiation Protection Section will conduct a review of the utilization and disposal logs to ensure accurate accountability of the radioactive materials.

5. Radiation monitoring instruments will be those already used as standard surveillance equipment for monitoring ionizing radiation. We received information from the Director and Radiation Safety Office of the National Air and Radiation Environmental Laboratory that work areas where alpha emitting radionuclides were utilized in their facility were surveyed by hand-held (pancake) survey meters and swipes analyzed with liquid scintillation counters. At CDC, areas where dilutions of the stock or calibration solutions are performed will be surveyed by hand-held alpha scintillation detectors. They will also be periodically (every four months) swiped and analyzed for contamination by liquid scintillation counting, and daily when stock and/or calibration solutions are used.

6. Occupational personnel monitoring by scintillation and/or pancake survey meters may be accomplished after handling solutions. Dosimetry badges will be monitored by the Radiation Protection Section and will be worn by all Radiation Workers in the laboratories where these radionuclides are used.

7. Doses to Members of the public will be negligible with radiation levels at the trace levels requested, considering waste handling procedures as described herein, and the ultra trace analytical quantities that will be utilized as calibration standards in a given analysis.

8. Surveys shall be performed at least monthly when diluted solutions are utilized, unless a spill should occur. As further prescribed, if surveying shall reveal a surface contaminated above 250 dpm/100 cm^2, cleanup and/or entry control procedures relevant to the intensity of contamination will be initiated as described in the CDC Radiation Safety Manual. The Radiation Protection Section will also survey at intervals no greater than 120 days as prescribed in the CDC Radiation Safety Manual.

9. Contamination controls involving alpha, beta, and gamma-emitting radionuclides for personnel include standard personal protective clothing such as disposable gloves, lab coat, and eye protection when working with radioactive materials. Surface contamination controls include dilutions performed on absorbent mats placed on lipped trays, thus decreasing the likelihood of spill contamination. The procedural dilution of stock solutions utilized for subsequent spikes and calibration standards will further decrease the possible levels of contamination should a spill occur. Air handling system modification and glove-box utilization are not warranted because of the following reasons: a) the concentrations of the requested radionuclides, which are already dissolved in aqueous solution, and their radioactivity are extremely small, b) the requested radionuclides are not volatile, and c) the method development protocols will not require the possession or weighing of powder samples or manipulation of concentrated solutions.

10. Safe use practices include wearing personal protective clothing when handling any

radionuclide, requirement of radiation safety training for radiation workers and permitted workers, personnel and surface monitoring, designated areas for handling radioisotopes, warning signs, surface contamination controls as described above, dilutions performed on absorbent mats placed on lipped trays, thus decreasing the likelihood of permanent surface contamination, and dilution of already low concentration stock solutions for utilization in analyses. Since the concentrations of the radionuclides requested for analytical purposes are low, personal distance and personal protective clothing and equipment (shielding) will be the major safety factors during utilization of these materials to minimize radiation exposure.

11. Storage procedures include locks placed on solution containers and radiological waste containers, or lock-boxes secured in refrigerators in which spiked urine standards and samples will be stored when not in use, or secured laboratories with the use of cardkey access.

12. Engineering controls to reduce contamination include the use of dilutions performed on absorbent mats, which are placed on lipped trays, thus preventing spills from entering effluent drains. Should a spill occur the liquid will be removed by absorption, wiping, and disposal into a designated radiological waste container. Additionally, most workbenches are lined with absorbent mats to prevent random or accidental contamination.

13. Decontamination of equipment will involve removal and disposal of peristaltic pump tubing, cleaning nebulizer and spray chamber with dilute acid (1% Nitric Acid) cleaning solution, and cleaning the sampler and skimmer cones and interface surface with dilute acid cleaning solution, which may then be disposed via the Radiation Protection Section as aqueous waste until the cones are worn out. When worn out, the cones may be disposed through the Radiation Protection Section as solid waste. The majority of the sample that does not pass into a waste container and actually enters the instrument would be deposited on the sampler and skimmer cones, which are removed approximately monthly by a radiation worker.

14. Decontamination prior to servicing of equipment would include removal and replacement of sampler and skimmer cones and wiping the interface with dilute acid cleaning solution. Because only a small area of the instrument would be exposed to contamination, decontamination prior to excessing the instrument would include the same procedures.

15. Emergency procedures, should an emergency occur, will be handled in accordance with emergency procedures described in the Radiological Emergency Response Program standard operating procedure, including lifesaving measures, and notification of the Radiation Protection Section for cleanup and other assistance. With the small amount of the requested radionuclides, emergencies are unlikely; however, radiation workers using radionuclides are required to wear personal protective clothing, which include disposable gloves, lab coat, and eye protection. Additionally, dilutions are performed on absorbent mats placed on lipped trays to mitigate any emergency situation.

16. With the exception of ^{131}I, bioassays, in addition to personnel monitoring described above and monitoring of dosimetry badges by the Radiation Protection Section, will not be necessary when working with the requested radionuclides because the requested radionuclides are to be in solution, are nonvolatile, and require no possession or handling of powder samples. Any

radiation workers who may utilize ^{131}I will have periodic thyroid scans, as presently performed for those who work with ^{125}I.

17. Effluent monitoring will be accomplished by calculating the amount of each radionuclide that can be discharged in accordance with the regulations established in 10 CFR Part 20, Appendix B. The activity and concentration of the liquid radioactive waste to be released by the sanitary sewer will be calculated by extracting a liquid sample and analyzing it with a liquid scintillation counter. The activity of the radioactive liquid waste will be calculated by multiplying the specific activity of the analyzed sample by the total volume to be disposed. The monthly concentration will be calculated by dividing the monthly activity disposed by the average monthly volume of water released into the sewer from the CDC site. For all liquid radioactive waste releases by the sanitary sewer from the CDC site, records will be maintained of each radionuclide and its activity and concentration that is released into the sewer system that demonstrate compliance with the regulatory limits for total activity and concentrations released.

18. Waste handling will include the collection of solid radioactive waste from the laboratory by the Radiation Protection Section and transfer to the Radiation Protection Section's locked waste storage facility. The liquid radioactive waste will be collected in closed unbreakable containers within the secured laboratory. The liquid radioactive waste will be maintained in the laboratory where generated until time for disposal by release into sanitary sewerage via a sink designated for radiological liquid radioactive waste disposal.

19. Waste disposal will be handled by the CDC Radiation Protection Section. Solid radioactive waste disposal will be performed with the use of a NRC licensed waste collector. Liquid radioactive waste disposal will be performed by the CDC Radiation Protection Section and will include the disposal of liquid radioactive waste by release into sanitary sewerage. The disposal of liquid radioactive waste into the sanitary sewerage will be conducted in accordance with the requirements stated in 10 CFR §20.2003, *Disposal by release into sanitary sewerage*. The Radiation Protection Section will ensure that the liquid radioactive wastes do not exceed the annual release limits or the monthly concentration limits listed in 10 CFR Part 20, Appendix B, Table 3. The Radiation Protection Section will dispose of any liquid radioactive waste in accordance with the CDC Liquid Radioactive Waste Disposal procedure.

20. Maximum activity to be handled at any one time for each of the requested alpha, beta, and gamma-emitting radionuclides will not exceed the quantities in Table 1. Methods for assessing low-level, non-occupational exposures of these radionuclides present in human blood, feces and/or urine have not been developed. The research and development for non-occupational analytical procedures has not been performed by any other agency or organization, for the radionuclides being requested. Though they will not exceed the quantities listed in Table 1, as method development progresses, the maximum amount handled at any one time will be more defined at lower levels.

In summary, we are prepared to work with these levels of alpha, beta, and gamma emitters, as we have experience working with these and other radionuclides that emit these types of radiation. The small amounts requested are in dilute aqueous solution form. We have an existing Radiation Safety Program, which along with modifications included herein, is well equipped to monitor

area surveys and personnel exposure, ensure that all radiation safety practices are followed, and safeguard these radionuclides from unauthorized access and removal. Please contact us as necessary for questions or discussion of concerns.

Sincerely yours,

Paul D. Simpson, Jr.

Paul D. Simpson Jr., RSO
Radiation Safety Team
Office of Health and Safety

DEPARTMENT OF HEALTH & HUMAN SERVICES

Public Health Service

Centers for Disease Control
and Prevention

February 16, 2007

Re: Statement of Intent for Materials License No. 10-06772-01

U.S. Nuclear Regulatory Commission
Division of Nuclear Materials Safety
Region I
475 Allendale Road
King of Prussia, PA 19406

Dear Sir,

As Director, Financial Management Office for the Centers for Disease Control and Prevention (CDC), I exercise express authority and responsibility to approve funding for decommissioning activities associated with operations authorized by the U.S. Nuclear Regulatory Commission Material License No. 10-0667-01. This authority is established by the CDC Delegations of Authority Handbook. Within this authority, I intend to have funds made available when necessary in an amount up to $1,125,000 to decommission the CDC facilities at: 1600 Clifton Road, NE, Atlanta, GA; 4770 Buford Highway, Chamblee, GA; and 602 Webb Gin House Road, Lawrenceville, GA. I intend to request and obtain these funds sufficiently in advance of decommissioning to prevent delay of required activities.

A copy of the CDC organizational chart and a copy of Section I.B. Financial Management of the CDC Delegations of Authority Handbook are attached as evidence that I am authorized to represent the CDC in this transaction.

Sincerely yours,

William P. Nichols
Director
Financial Management Office

NONNEGOTIABLE

CDC DELEGATIONS OF AUTHORITY

ADMINISTRATIVE AUTHORITIES

FINANCIAL MANAGEMENT/AGREEMENTS, REIMBURSABLE

Authority or Responsibility Delegated

To sign interagency, intra-agency, and international organization reimbursable agreements.

Restrictions, Exceptions, or Special Provisions

Excludes significant reimbursable agreements as defined in HHS General Administration Manual, Chapter 8-77, Section 8-77-60 (See HHS GAM Transmittal 95.02, dated 10/31/95).

To Whom Delegated

PHS Agency Heads/OPDIV Heads

Redelegation

May be redelegated.

Documentation and Effective Date

HHS General Administration Manual, Chapter 8-77; 22 U.S.C., Section 2357; and 31 U.S.C., Section 1535.

Supersession

Delegation of 11/17/94 from the Deputy Assistant Secretary for Health Management Operations, PHS.

References

HHS Administration Manual, Chapter 8-77, 20-15, 20-20, and 20-50; 22 U.S.C., Section 2357; 31 U.S.C., Section 1535; CDC General Administration Manual Guide No. CDC-71; and any other applicable statues and regulations.

REDELEGATION OF AUTHORITY

Authority or Responsibility Delegated and to Whom Delegated

a. To execute reimbursable agreements for CDC to perform services for, or to procure services from, components of HHS or other Federal agencies, which includes the Department of State and/or its component agencies.

TO WHOM DELEGATED	AREA OF AUTHORITY
Chief Operating Officer, CDC	CDC-wide
Directors, Coordinating Centers/Coordinating Offices	Respective organizations
Chief Management Officials, CDC	Respective organizations

Directors, Centers/Institutes/Program Offices	Respective organizations
Director, Office of Workforce and Career Development	Respective organization
Deputy Chief Operating Officer, CDC (cannot be redelegated)	Areas of functional responsibility
Chief Information Officer, CDC (cannot be redelegated)	Areas of functional responsibility
Director, Information Technology Services Office (cannot be redelegated)	CDC/ATSDR-wide

Authority or Responsibility Delegated and to Whom Delegated

b. To execute reimbursable agreements for CDC to provide services or commodities to international organizations or friendly countries.

TO WHOM DELEGATED	AREA OF AUTHORITY
Deputy Director for Public Health Science, CDC	CDC-wide
Associate Director for Global Health, CDC	CDC-wide

Restrictions, Exceptions, or Special Provisions

Same as above.

This delegation excludes the authority to procure services from an international organization or a friendly country. If CDC will be paying an international organization for the services obtained, then a contract, grant, or cooperative agreement (rather than a reimbursable agreement) is the appropriate method to use.

Redelegation

May be redelegated. Redelegation is restricted to one level below the official(s) listed above.

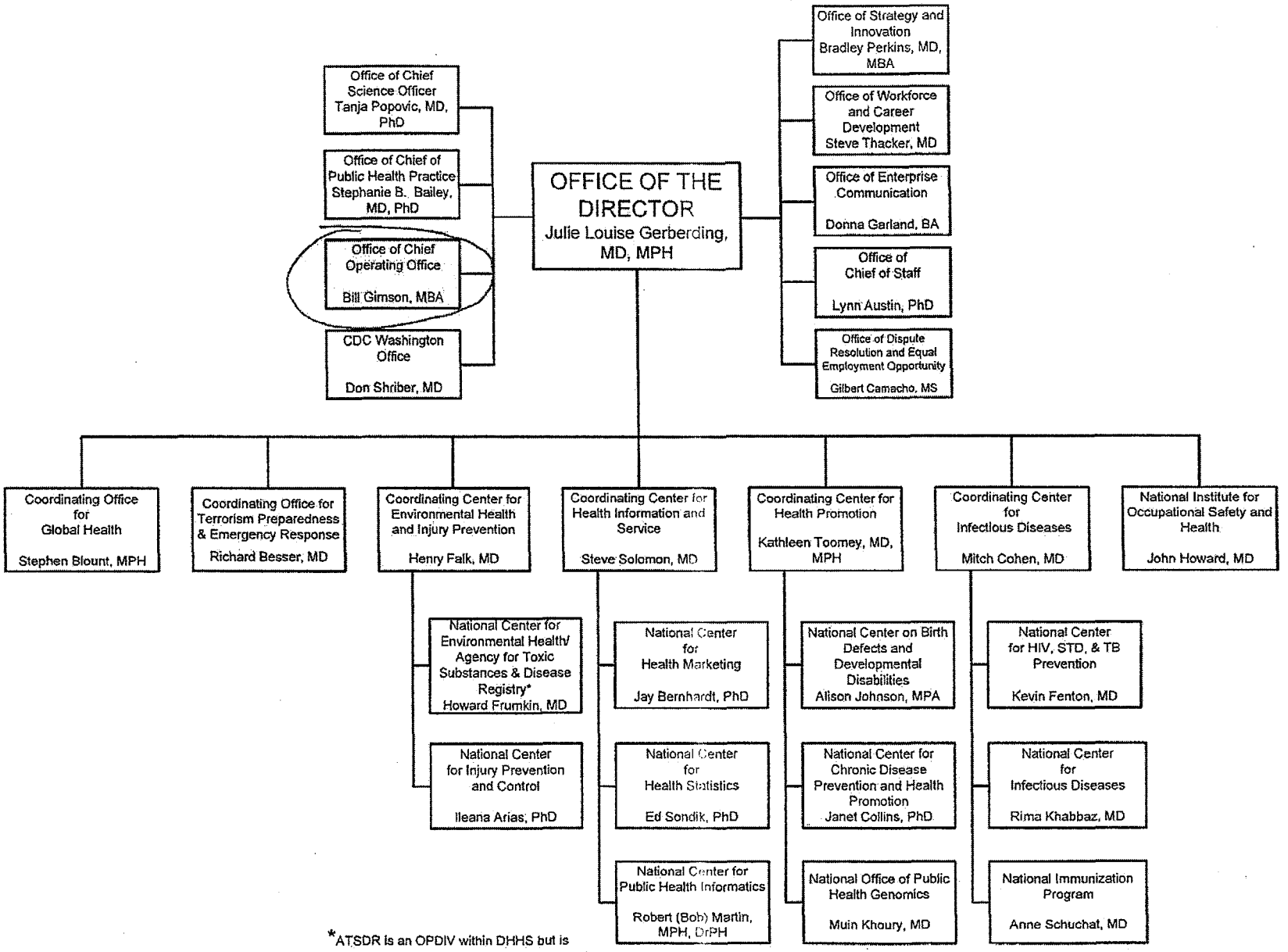
Documentation and Effective Date

Delegations of 10/25/00, 3/3/03, 8/1/05, 8/3/06 and 10/13/06 from the Director, CDC; 6/9/00 from the Deputy Director for Program Management, CDC; and 9/10/03 and 8/31/06 from the Chief Operating Officer, CDC.

Supersession

Delegation of 6/1/00 from the Director, CDC.

DEPARTMENT OF HEALTH AND HUMAN SERVICES
CENTERS FOR DISEASE CONTROL AND PREVENTION (CDC)



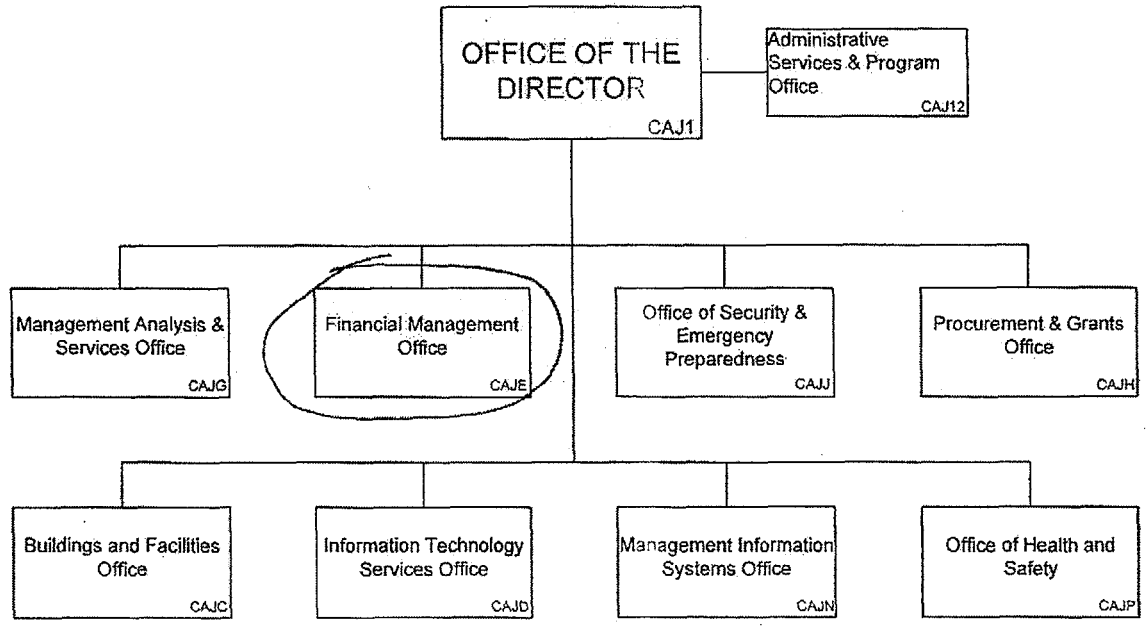
*ATSDR is an OPDIV within DHHS but is managed by a common Ofc of the Director with NCEH

APPROVED 8/14/2006

Names Updated 2/2007

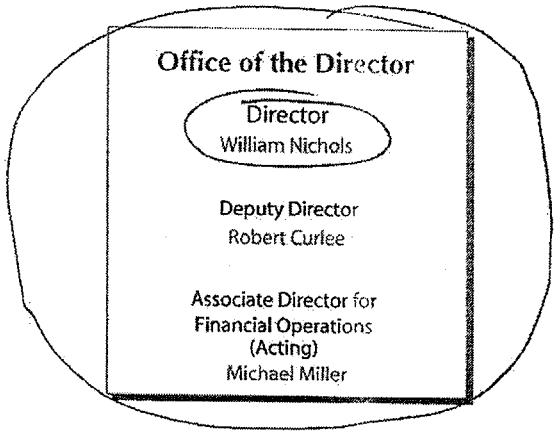
DEPARTMENT OF HEALTH AND HUMAN SERVICES
CENTERS FOR DISEASE CONTROL AND PREVENTION

OFFICE OF THE CHIEF OPERATING OFFICER (CAJ)



APPROVED 12/22/2005

FINANCIAL MANAGEMENT OFFICE



Accounting Branch
Chief
Edith Chadwell

Budget Execution Branch
Chief
William Digioia

Financial Systems Branch
Chief
(Acting)
Wayne Cusick

Financial Services Branch
Chief
Betty Miller-Barnard

Budget Formulation and Public Health Policy Branch
Chief
Sherri Berger

CDC

Updated 2.16.07

Table 1

Additional Information for Radionuclides Requested

Mass	At. #	Element	Symbol	Half Life	Emitter	Proposed Maximum Possession Limit	Chemical/ Physical Form	Relative Radiotoxicity	Specific Activity (Ci/g)	Proposed Use	Percent Enriched Form
10	4	Beryllium	Be	1.6E6 a	Beta	1.0 mCi	Any		2.235E-02	R&D	Low -Highly
18	9	Fluorine	F	1.83 h	Positron	1.0 mCi	Any	Moderate	9.511E+07	R&D	Low –Highly
57	27	Cobalt	Co	271.8 d	Gamma	1.0 mCi	Any	Moderate	8.456E+03	R&D	Low –Highly
60	27	Cobalt	Co	5.27 a	Gamma	2.0 mCi	Any	High	1.131E+03	R&D	Low –Highly
63	28	Nickel	Ni	96 a	Beta	1.0 mCi	Any	Moderate	5.914E+01	R&D	Low –Highly
64	29	Copper	Cu	12.7 h	Beta	1.0 mCi	Any	Moderate	3.865E+06	R&D	Low –Highly
67	29	Copper	Cu	2.58 d	Beta	1.0 mCi	Any		7.552E+05	R&D	Low –Highly
68	31	Gallium	Ga	1.13 h	Beta+	1.0 mCi	Any		4.077E+07	R&D	Low –Highly
90	38	Strontium	Sr	28.78 a	Beta	2.0 mCi	Any	High	1.364E+02	R&D	Low –Highly
99	43	Technetium	Tc	2.13E5 a	Beta	1.0 mCi	Any	Moderate	1.695E-02	R&D	Low –Highly
99m	43	Technetium	Tc-99m	6.01 h	Gamma	1.0 mCi	Any	Low	5.243E+06	R&D	Low –Highly
109	48	Cadmium	Cd	1.27 a	Gamma	1.0 mCi	Any	Moderate	2.826E+05	R&D	Low –Highly
131	53	Iodine	I	8.02 d	Beta	1.0 mCi	Any	High	1.240E+05	R&D	Low –Highly
137	55	Cesium	Cs	30.2 a	Beta	2.0 mCi	Any	High	8.698E+01	R&D	Low –Highly
152	63	Europium	Eu	13.48 a	Positron	1.0 mCi	Any	High	1.729E+02	R&D	Low –Highly
154	63	Europium	Eu	8.59 a	Beta	1.0 mCi	Any	High	2.699E+02	R&D	Low –Highly
192	77	Iridium	Ir	73.83 d	Beta	1.0 mCi	Any	High	7.762E+00	R&D	Low –Highly
192	77	Iridium	Ir	73.83 d	Beta	1.0 mCi	Any	High	9.211E+03	R&D	Low –Highly
209	84	Polonium	Po	102 a	Alpha	1.0 mCi	Any	Low	1.68E+01	R&D	Low –Highly
210	84	Polonium	Po	138.38 d	Alpha	2.0 mCi	Any	Very High	4.493E+03	R&D	Low –Highly
226	88	Radium	Ra	1600 a	Alpha	2.0 mCi	Any	Very High	9.891E-01	R&D	Low –Highly
228	88	Radium	Ra	5.76 a	Beta	1.0 mCi	Any	Very High	9.891E-01	R&D	Low –Highly
228	90	Thorium	Th	1.91 a	Alpha	1.0 mCi	Any	Very High	8.213E+02	R&D	Low -Highly
230	90	Thorium	Th	7.54E4 a	Alpha	1.0 mCi	Any	Very High	2.062E-02	R&D	Low - Highly
234	92	Uranium	U	2.46E5 a	Alpha	1.0 mCi	Any	Very High	6.248E-03	R&D	Low –Highly
236	92	Uranium	U	2.34E7 a	Alpha	1.0 mCi	Any	High	6.469E-05	R&D	Low –Highly
237	93	Neptunium	Np	2.14E6 a	Alpha	1.0 mCi	Any	Very High	7.049E-04	R&D	Low –Highly
238	94	Plutonium	Pu	87.7 a	Alpha	1.0 mCi	Any	Very High	1.712E+01	R&D	Low –Highly
239	94	Plutonium	Pu	2.41 a	Alpha	1.0 mCi	Any	Very High	1.712E+01	R&D	Low –Highly
240	94	Plutonium	Pu	6.56E3 a	Alpha	1.0 mCi	Any	Very High	2.278E-01	R&D	Low –Highly

Mass		Element	Symbol	Half Life Years	Emitter	Proposed Maximum Possession Limit	Chemical/ Physical Form	Relative Radiotoxicity	Specific Activity (Ci/g)	Proposed Use	Percent Enriched Form
242	94	Plutonium	Pu	3.75E5a	Alpha	0.01 μCi	Any	Very High	3.941E-03	R&D	Low - Highly
241	95	Americium	Am	432.7 a	Alpha	2.0 mCi	Any	Very High	3.432E+00	R&D	Low –Highly
242	95	Americium	Am	1141 a	Alpha	1.0 mCi	Any	Very High	8.084E+05	R&D	Low –Highly
243	95	Americium	Am	7.37E3 a	Alpha	1.0 mCi	Any	Very High	1.993E-01	R&D	Low –Highly
244	96	Curium	Cm	18.1 a	Alpha	1.0 mCi	Any	Very High	8.098E+01	R&D	Low - Highly
252	98	Californium	Ca	2.65 a	Alpha	1.0 mCi	Any	Very High	5.356E+02	R&D	Low - Highly

Table 1

The above radionuclides highlighted in YELLOW are being requested to possess or to increase their possession limit. The radionuclides not highlighted in YELLOW have been approved on the CDC Materials License by the NRC. Those radionuclides are indicated as approved on the CDC Materials License in one of two ways; either they have atomic numbers between 3 and 83 with a half-life less than 120 days (e.g., Fluorine-18 and Iridium-192) , or they are specifically listed on the license (e.g., Americium-242 and Uranium-234).

The following symbols are given for time reference in the column listing the Half-Life:
h = hours
d = days
a = years

Naturally Occurring Radionuclides
Polonium-210
Radium-226

Accelerator Produced Radionuclides
Polonium-209
Technetium-99
Technetium-99m

Fission Produced Radionuclides
Beryllium-10
Strontium-90
Cadmium-109
Cesium-137

Reactor Activated Radionuclides
Cobalt-60
Nickel-63
Europium-152
Europium-154
Neptunium-237

Special Nuclear Materials
Plutonium, Uranium-233, or Uranium enriched in the isotopes Uranium-233 or Uranium-235

Regulated by Georgia Department of Natural Resources
Cobalt-57
Radium-226

Table 2
Possession Limit / Financial Assurance Worksheet

Isotope (Form is Any unless noted)	Requested Limit (mCi)	Requested Limit (uCi)	Listed Part 30 App. B (uCi)	Unsealed Byproduct Material 10^5 x Listed Part 30 App. B (uCi)	Sealed Byproduct Material 10^10 x Listed Part 30 App. B (uCi)	Unsealed SNM 10^4 x Listed Part 30 App. B (uCi)	Unsealed Source Material Total 10 mCi Part 40.36 (uCi)	10CFR 30.35(d) R for Unsealed Byproduct Material	10CFR 30.35(d) R for Sealed Byproduct Material	10CFR 70.25(d) R for Unsealed Special Nuclear Material	10CFR 40.36 R for Dispersable Source Material	Notes
Any byproduct material with atomic numbers 3-83, with half lives less than 120 days except as specified below:	100 mCi for each nuclide, with a total possession limit of 5 Ci											
H-3	250	250000	1000	1E+09				250				
C-14	75	75000	100	100000000				750				
P-32	350		10									
S-35	350		100									
Cr-51	350		1000									
I-125	220		1									
I-129	0.01	10	0.1	100000								
Ni-63 (foil or plated)	400	400000	10		1E+11				4.00E-06			
U-233	0.5	500	0.01			100				5		alpha
U-235	0.00001	0.01	0.01			100				0.0001		
Pu-238	1	1000	0.01			100				10		alpha
Pu-239	1	1000	0.01			100				10		alpha
Pu-240	1	1000	0.01			100				10		alpha
Pu-242	0.00001	0.01	0.01			100				0.0001		alpha
Natural or Source Uranium	0.4543	454.3	100			100000	10000				0.04543	alpha
Natural or Sourch Thorium	1	1000	100			100000	10000				0.1	alpha
Th-228	1	1000	0.01			10						alpha
Th-230	1	1000	0.01			10						alpha
Be-10	1	1000	0.1	100000								beta
F-18	1	1000	1000									beta
Co-57	1	1000	0.1									gamma
Co-60	2	2000	1					2000				gamma
Ni-63	1	1000	10	10000000				100				beta
Cu-64	1	1000	100									beta
Cu-67	1	1000	100									beta
Ga-68	1	1000	0.1									beta
Sr-90	2	2000	0.1	100000				20000				beta
Tc-99	1	1000	10									beta
Tc-99m	1	1000	100									beta
Cd-109	1	1000	10	10000000				100				gamma
I-131	1	1000	1									beta
Cs-137	2	2000	10	10000000				200				beta
Eu-152	1	1000	1	1000000				1000				beta
Eu-154	1	1000	1	1000000				1000				beta
Ir-192	1	1000	10									beta
Ir-192	1	1000	10									beta
Po-209	1	1000	0.01	10000				100000				alpha
Po-210	2	2000	0.1	100000				20000				alpha
Ra-226	2	2000	0.01	10000				200000				alpha
Ra-228	1	1000	0.1	100000				10000				alpha
U-234	1	1000	0.01				1000					alpha
U-236	1	1000	0.01				1000					alpha
Np-237	1	1000	0.01									alpha
Am-241	2	2000	0.01	10000				200000				alpha
Am-242	1	1000	0.01	10000				100000				alpha
Am-243	1	1000	0.01	10000				100000				alpha
Cm-244	1	1000	0.01	10000				100000				alpha
Ca-252	1	1000	0.01	10000				100000				alpha
							SUM	**955400**	**0.000004**	**35.0002**	**0.14543**	
								$1,125,000	**$ -0-**	**$ -0-**	**$ -0-**	
						R divided by 10E5 =		0.9554	4E-10	0.0035		

Total funds required **$1,125,000**

Appendix C

DEPARTMENT OF HEALTH AND HUMAN SERVICES (DHHS)
CENTERS FOR DISEASE CONTROL AND PREVENTION (CDC)
ATLANTA, GEORGIA 303413724

FY 2006

INTERAGENCY REIMBURSABLE AGREEMENT (IRA) BETWEEN
The Centers for Disease Control and Prevention (CDC)
And
The Department of Energy-National Nuclear Security Administration (DOE NNSA)
Los Alamos National Laboratory (LANL)

TITLE:
Preparation of software dose calculations, technology transfer, and consultative services (LANL Proposal R-2479-06-0)

THIS MEMORANDUM SETS FORTH THE TERMS AND CONDITIONS OF AGREEMENT FOR SERVICES TO BE PROVIDED

FOR: (CDC)
Inorganic Toxicology and Nutrition Branch
Division of Laboratory Sciences
National Center for Environmental Health
Centers for Disease Control and Prevention
DHHS
Atlanta, GA 303413724

BY: (DOE NNSA)
Los Alamos Site Office
528 35th Street
Los Alamos, NM 87544 and
(LANL under DOE/NNSA contract DE-AC52-06NA25396)
Chemistry Division
Analytical Chemistry Sciences Group
Los Alamos National Laboratory
Los Alamos, NM 87545
(under DOE/NNSA contract W-7405-ENG-36)

PURPOSE: Under the terms of this agreement, CDC will provide additional support in the amount of $200,000 to NNSA to supplement the FY06 contract with Los Alamos National Security, LLC, Los Alamos National Laboratory (LANL), to assist the Centers for Disease Control and Prevention (CDC) establish analytical capability for evaluation of biologic and environmental samples containing radioactive nuclides or fission products at biologically relevant levels. LANL will also provide CDC with a software program that will enable calculation of dose, intake and activity correlations for select analytes of interest.

LANL will also transfer to CDC any refinements to the mass spectrometric, separation schemes (manual and automated or semi-automated) and radioanalytical methods to rapidly determine actinides and fission products near background levels in urine matrices.
This cooperative agreement will assist CDC to meet high priority national public health interests related to potential adverse health effects from exposure to these radioactive elements. In addition, the collaboration will help CDC plan and equip new laboratories with appropriate technology for the purpose of assessing the general population's exposure during an emergency response.

I. Services Provided:
LANL Tasks and Responsibilities

Under the terms of this agreement, LANL will also provide CDC with a software program that will enable calculation of dose, intake and activity correlations for select analytes of interest

This cooperative agreement will assist CDC to meet high priority national public health interests related to potential adverse health effects from exposure to these radioactive elements.

Over the course of this agreement, LANL will perform some or all of the following services for CDC:

1) LANL will create a software program using Microsoft Excel (or a mutually agreed software) for CDC, which will provide information concerning activity levels of radionuclides in urine at varying times post intake and the corresponding doses due to those intakes including both inhalation and ingestion routes. Conversely, the program will project the level of radionuclides for a given trigger dose; corresponding to the dose received from one annual limit of intake to and including ten times the annual limit of intake. The scope of this work includes calculations for 11 elements, 17 radionuclides, 1-3 adsorption types and 1-3 particle sizes, by gender and age.
2) Develop an appropriate on-line separation scheme for analytes of interest to improve sample throughput. This may include matrix removal, analyte separations and pre-concentration. Samples will be analyzed by radio counting and/or mass spectrometric techniques as appropriate. These consultations may involve travel by either LANL or CDC personnel, or both.
3) Consult with CDC on emergency preparedness in the event of a national crisis associated with radiation dispersal devices.
4) LANL-C-CSE will deliver previously developed separation methods to CDC. This will involve packing, quality checking, and delivering four analytical columns to CDC. These columns will be packed with Eichrom resin. We will also travel to CDC in order to transfer this method, and if requested, the method involving the Dionex analytical columns.
5) LANL-C-CSE will further develop analytical separation methods for ICPMS so the time required to analyze a sample with actinides will take less time. This will be accomplished by looking at different resins, with different particle diameters, and by examining the utility of performing separations using shorter columns. This project will result in a final report and recommendations on how to further decrease the amount of time required to separate actinides in a sample.

6) Development of a portable analytical method for tritium analysis in aqueous or urine solutions using a portable liquid scintillation (LS) analytical system. Determine the LS instruments' applicability, develop an analytical method, test the method with a variety of Quality Control (QC) materials to ensure reproducibility and performance, and complete the

project with a documented and validated method. A possible future application would extend this to include the Sr-90 radionuclide component.

II. Proposed Timeline for Completion of Additional Tasks:
Scope of Work for FY 2006

1) LANL will create a software program using Microsoft Excel (or a mutually agreed software) for CDC, which will provide information concerning activity levels of radionuclides in urine at varying times post intake and the corresponding doses due to those intakes including both inhalation and ingestion routes. Conversely, the program will project the level of radionuclides for a given trigger dose; corresponding to the dose received from one annual limit of intake and ten times the annual limit of intake. The scope of this work includes calculations for 11 elements, 17 radionuclides, 1-3 adsorption types, 1-3 particle sizes, by gender and age.

2) LANL will develop an appropriate on-line separation scheme for analytes of interest to improve sample throughput. This may include matrix removal, analyte separations and pre-concentration. Samples will be analyzed by radio counting and/or mass spectrometric techniques as appropriate. These consultations may involve travel by either LANL or CDC personnel, or both.

3) LANL will deliver previously developed separation methods to CDC. This will involve packing, quality checking, and delivering four analytical columns to CDC. These columns will be packed with Eichrom resin. We will also travel to CDC in order to transfer this method, and if requested, the method involving the Dionex analytical columns.

4) LANL will develop a portable analytical method for tritium analysis in aqueous or urine solutions using a portable liquid scintillation (LS) analytical system. Determine the LS instruments' applicability, develop an analytical method, test the method with a variety of Quality Control (QC) materials to ensure reproducibility and performance, and complete the project with a documented and validated method. A possible future application would extend this to include the Sr-90 radionuclide component.

5) LANL will consult with CDC on emergency preparedness in the event of a national crisis associated with radiation dispersal devices.

6) LANL will provide hands-on training to CDC personnel in the use of the software developed in item #1 above.

III. REPORTING REQUIREMENTS

A. LANL will provide reports to the CDC Project Officer verbally on an "as needed" basis and a written annual report of activities under this Agreement will be provided at the close of each fiscal year.

B. CDC and LANL personnel will meet periodically, at a time and place mutually agreeable, to discuss program design, problems, logistics, and future activities.

IV. CDC Tasks and Responsibilities:
Over the course of this agreement, CDC will perform some or all of the following services for LANL:

1) Provide pooled urine (and other biological) specimens to LANL which are low in natural (or anthropogenic) radionuclides.

2) Make data and other findings available to LANL in areas of mutual interest. This could include, but is not limited to, manuscripts and drafts of research publications, laboratory data or other findings.

V. Period of Service

This agreement covers services to be provided during FY 2006 (work to be completed March 30th, 2007) for the preparation of a software program to which will provide information concerning activity levels of radionuclides in urine at varying times post intake and the corresponding doses due to those intakes including both inhalation and ingestion routes. Conversely, the program will project the level of radionuclides for a given trigger dose; corresponding to the dose received from one annual limit of intake and ten times the annual limit of intake. It is anticipated that this agreement will form the basis for collaboration between CDC and LANL for the analysis and interpretation of human exposures related to public health investigations and studies during FY 2006 and possible future fiscal years, pending availability of funds.

VI. Other Stipulations

1) The resulting agreement from this proposal may be amended by Memorandum of Modification signed by authorized officials of both agencies. If the contract period is extended or if additional services are provided by LANL, CDC will provide funds sufficient to cover expenditures incurred by CDC. The cost will be determined at the time of modification. Any changes in deliverables that do not affect the scope of work or the budget will be communicated with the PI in writing, with a copy sent to the Program Manager

2) Title to all nonexpendable property acquired by LANL from funds allotted under this agreement shall vest and remain with LANL.

3) This agreement does not modify existing agreements nor does it preclude entering into separate agreements.

4) Nothing in this agreement is intended to diminish or otherwise affect the authority of either agency to carry out its respective statutory functions.

5) This agreement can be unilaterally terminated by CDC or LANL upon 30 days prior written notice to the signers of this agreement.

6) All travel under this proposal is subject to allowances authorized in accordance with the Federal Travel Regulations, the Joint Federal Travel Regulations, and/or the Foreign Service Regulations.

VII. PROJECT OFFICERS and Leaders AND LOCATIONS

For CDC **Management**

Theodore J. Meinhardt, PhD
Deputy Director for Management and Operations
Division of Laboratory Sciences, NCEH
Centers for Disease Control & Prevention
4770 Buford Hwy NE MS F-20
Atlanta, GA 30341-3724 USA
Ph: 770-488-4579 FAX: 770-488-4839
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Technical

Robert Jones, Ph.D.
Chief, Inorganic Toxicology Laboratory
National Center for Environmental Health
Centers For Disease Control and Prevention, DHHS
4770 Buford Hwy NE, MS F18
Atlanta, Georgia 30341-3724
Ph: (770) 488-7991, FAX (770) 488-4097
E-mail: RLJones@cdc.gov

For NNSA

DOE/NNSA/LASO Contracting Officer
528 35th Street
Los Alamos, NM 87544
Ph: 505-665-7330, fax 505-665-4853
E-mail: wfo@lanl.gov

For LANL

Program Office

MaryAnn D. Martinez
Los Alamos National Laboratory
Office of Grants & Contracts Team Leader
MS G758, Los Alamos, NM 87545
Ph: (505) 667-5324, Fax: (505) 667-0110
E-mail: nih@lanl.gov

Project Leader

Raymond A. Guilmette, Ph.D.
Technical Staff Member
HSR Division
Los Alamos National Laboratory
MS E546, Los Alamos, NM 87545
Ph: (505) 665-5059, Fax: (505) 665-2052
E-mail: rguilmet@lanl.gov

VIII. AUTHORITY

This agreement is entered into pursuant to the authority of the Economy Act of 1932, as amended (31 United States Code 1535) [or other statutory authority references], and adheres to Federal Acquisition Regulation (FAR) 6.002.

IX. Attachments

PERSONNEL/SERVICES COST

Raymond A. Guilmette, Ph.D., principal investigator, provides overall scientific basis for computational model development as well as guidance to CDC on use of models and software.
Guthrie Miller, Ph.D., will complete development of Phase I software package for CDC and work with Bertelli on the Phase II software development, and software quality assurance (SQA) validation and verification.

Luiz Bertelli, Ph.D., will work with Miller for SQA of Phase I software, and will be the principal developer of the Phase II software.

Sheryl Glasser, Ph.D., external contractor, will work with Miller to complete the Phase I software modifications.

Ed Gonzales will deliver previously developed separation methods to CDC and further develop analytical separation methods for ICPMS so the time required for analysis is decreased.

George Brooks will develop a portable analytical method for tritium analysis in aqueous or urine solutions using a portable liquid scintillation (LS) analytical system.

Travel: A total of 6 person-trips to CDC Atlanta are planned within the period of performance of this contract. This is envisaged to be three trips with two persons each. The purposes, which are under the authority of CDC, will likely be for instructing CDC staff on the use of the LANL-produced software, and for consultations on dose and risk assessment issues.

*Other individuals involved in this project are not named because the analytical personnel changes depending on the type of analysis required. The time and effort for these individuals are reflected in the cost of analysis (section F).

Funding Profile and Cost Estimate (in $K)

Work will begin at Los Alamos upon receipt of authorization from the NNSA, to proceed with the proposed project. The cost estimate for the proposed project is shown below. If funding is received three months or more after the proposed start of the project, the cost estimate is subject to revision. Consistent with DOE's full cost recovery policy, LANL collects, as part of its standard indirect cost rate, a Laboratory Directed Research and Development (LDRD) cost. The amount of LDRD for this Proposal is estimated to be **$11,652.** This amount is incorporated in the estimate below under the line "Los Alamos Cost Estimate."

Proposed Project Start Date: **upon receipt of funds anticipated July 2006**	Proposed Project End Date: **March 30, 2007**

	FY2006
Los Alamos Cost Estimate	194.2
DOE/NNSA Admin. Charge[1]	5.8
Total Costs + DOE/NNSA Admin. Charge	200.0
Total Funds Requested	$200K

Counter Terrorism/Homeland Security: LANL has verified with the sponsor that this work is directly related to counter terrorism and homeland security activities of the sponsor.

Export Controls

"Unless specific national security controls (e.g., information classification guides and/or prepublication reviews) are required and specified in detail elsewhere in this contract, the research to be performed under this contract shall be considered "fundamental research" as defined in National Security Decision Directive 189* and (funding agency name) hereby approves the information and technical data resulting from the research for public release.

When specific national security controls are required, that part of the research/information/ technical data outside the "specific national security controls" shall be considered "fundamental research" and approved for public release.

*BSDD 189 defines fundamental research as "basic and applied research in science and engineering, the results of which ordinarily are published and shared broadly within the scientific community, as distinguished from proprietary research and from industrial development, design, production, and product utilization, the results of which ordinarily are restricted for proprietary or national security reason.

Project Management

Upon **project completion**, the Close-out Procedures must be finalized (See attached forms which accompany both the WFO Proposal Forms as well as the WFO Proposal Package Instructions and Steps for DOD for your convenience and utilization).

HSR Issues

The work being done for this project will require the use of the same type of chemicals that we currently use for our research. For example, chloroform and methylene chloride will be used and we have already been approved for use of these chemicals in our lab. The quantities used fall within the acceptable limits under which we currently operate. This work will be performed in TA-35-85.

Classification and Security

This project will not involve generating or handling classified information or materials at Los Alamos.

X. CDC AND LANL SIGNATURE OF APPROVAL

A. DEPARTMENT OF HEALTH AND HUMAN SERVICES
PUBLIC HEALTH SERVICE
CENTERS FOR DISEASE CONTROL AND PREVENTION
ATLANTA, GEORGIA 30333

By (signature):_____ Date:_____

Name: _____, MD, MPH

Title: Director, National Center for Environmental Health
Centers for Disease Control and Prevention
Department of Health and Human Services

B. DEPARTMENT OF ENERGY
NATIONAL NUCLEAR SECURITY ADMINISTRATION
LOS ALAMOS SITE OFFICE
528 35th STREET
LOS ALAMOS, NM 87544

By (signature):_____ Date:_____

Name: _____

Appendix D

DEPARTMENT OF HEALTH AND HUMAN SERVICES (DHHS)
CENTERS FOR DISEASE CONTROL AND PREVENTION (CDC)
ATLANTA, GEORGIA 303413724

FY 2006

INTERAGENCY REIMBURSABLE AGREEMENT (IRA)
BETWEEN
THE CENTERS FOR DISEASE CONTROL AND PREVENTION (CDC)
AND
THE OAK RIDGE NATIONAL LABORATORIES (ORNL)

TITLE: Preparation of standards and biologic quality control materials, and consultative services.

THIS MEMORANDUM SETS FORTH THE TERMS AND CONDITIONS OF AGREEMENT FOR SERVICES TO BE PROVIDED

FOR: (CDC)
Inorganic Toxicology and Nutrition Branch
Division of Laboratory Sciences
National Center for Environmental Health
Centers for Disease Control and Prevention
DHHS
Atlanta, GA 30341-3724

BY: (ORNL)
Oak Ridge National Laboratory
Oak Ridge, TN 37831

PURPOSE: Under the terms of this agreement, CDC will provide support in the amount of $25,000 to Oak Ridge National Laboratory (ORNL) to assist the Centers for Disease Control and Prevention (CDC) establish analytical capability for evaluation of biologic and environmental samples containing radioactive nuclides or fission products at biologically relevant levels. Under the terms of this agreement, ORNL will prepare biologic materials and possibly aqueous standards containing radionuclides/fission products of interest to CDC, aliquot the materials into appropriate containers, and ship these materials to CDC appropriately. These materials will be used for calibration and multiple levels of quality control for the CDC analysis of these elements.

This cooperative agreement will assist CDC to meet high priority national public health interests related to potential adverse health effects from exposure to these radioactive elements. In addition, the collaboration will help CDC plan and equip new laboratories

with appropriate technology for the purpose of assessing the general population's exposure during an emergency response.

I. Services Provided:
ORNL Tasks and Responsibilities

Under the terms of this agreement, ORNL will prepare biological materials (spiked urine) and aqueous standards containing radionuclides of interest to CDC, aliquot the materials into appropriate containers, and ship these materials to CDC. These materials will be used for calibration and multiple levels of quality control for the CDC analysis of these elements.

This cooperative agreement will assist CDC to meet high priority national public health interests related to potential adverse health effects from exposure to these radioactive elements.

Over the course of this agreement, ORNL will perform some or all of the following services for CDC:

Provide quality control material(s) and aqueous solutions of radionuclides of interest suitable for use in calibration or evaluation of precision/accuracy of CDC measurement systems. These control materials will have reference target values established by ORNL by alpha, beta, and gamma counting, or more than one of these procedures.

Scope of Work for FY 2006

Oakridge will provide quality control material(s) and aqueous solutions of radionuclides of interest suitable for use in calibration or evaluation of precision/accuracy of CDC measurement systems. These control materials will have reference target values established by ORNL by alpha, beta and gamma counting, or more than one of these procedures.

CDC Tasks and Responsibilities:

Over the course of this agreement, CDC will perform some or all of the following services for ORNL:

Provide analytical results of the QC material e.g. urine specimens to ORNL which are low in natural (or anthropogenic) radionuclides.

II. REPORTING REQUIREMENTS

ORNL will provide reports to the CDC Project Officer verbally on an "as needed" basis, and a written annual report of activities under this Agreement will be provided at the close of each fiscal year.

III. PERIOD OF SERVICE

This agreement covers services to be provided during FY 2006 for the preparation of standards, biological quality control materials, and consultations. It is anticipated that this agreement will form the basis for collaboration between CDC and ORNL for the analysis and interpretation of human and other biological specimens related to public health investigations and studies during FY 2006 and possible future fiscal years, pending availability of funds.

IV. OTHER STIPULATIONS

A. This agreement may be amended by Memorandum of Modification signed by authorized officials of both agencies. If the contract period is extended, or if additional services are provided by ORNL, CDC will provide funds sufficient to cover expenditures incurred by CDC. The cost will be determined at the time of modification.

B. Title to all nonexpendable property acquired by ORNL from funds allotted under this Agreement shall vest and remain with ORNL.

C. This Agreement does not modify existing agreements nor does it preclude entering into separate agreements.

D. Nothing in this Agreement is intended to diminish or otherwise affect the authority of either agency to carry out its respective statutory functions.

E. This Agreement can be unilaterally terminated by CDC or Oakridge upon 30 days prior written notice to the signers of this agreement.

F. All travel under this Agreement is subject to allowances authorized in accordance with the Federal Travel Regulations, the Joint Federal Travel Regulations, and/or the Foreign Service Regulations.

V. PROJECT OFFICERS AND LOCATIONS

For CDC

Management
Theordore J. Meinhardt, Ph.D.
Deputy Director for Management & Operations
Division of Laboratory Sciences
National Center for Environmental Health
Centers For Disease Control and Prevention, DHHS
4770 Buford Hwy NE, MS F20
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Technical
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Chief, Inorganic Toxicology Laboratory
National Center for Environmental Health
Centers For Disease Control and Prevention, DHHS
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Atlanta, Georgia 30341-3724
(770) 488-7991
FAX (770) 488-4097
e-mail: RLJones@cdc.gov

For Oak Ridge National Laboratory:
Gerard Payne, Ph.D.
Group Leader
Quality Services Division
Oak Ridge National Laboratory
Bldg. 5510A, MS 6366
Oak Ridge, TN 37831
(865) 574-5014
FAX (865) 576-6316
e-mail: GPN@ORNL.gov

VI. AUTHORITY

This Agreement is made under the authority of Section 601 of the Economy Act, of 1932, as amended (31 USC 1535 and 1536).

VII. CDC AND DOE SIGNATURE OF APPROVAL

A. DEPARTMENT OF HEALTH AND HUMAN SERVICES
PUBLIC HEALTH SERVICE
CENTERS FOR DISEASE CONTROL AND PREVENTION
ATLANTA, GEORGIA 30333

By: Carol H Aloisio Date: 7-13-06

Name: Carol H. Aloisio, MPA

Title: Director, Oiffice of Financial and Administrative Services
NCEH/ATSDR
Centers for Disease Control and Prevention
Department of Health and Human Services

B. DEPARTMENT OF ENERGY
OAKRIDGE OFFICE
P.O BOX 2001
OAK RIDGE, TN 37831

By: James B. Reafsynder Date: 7/27/06

Name: James A. Reafsynder

Title: Director, Office of Partnerships and Project Development
Oak Ridge Office
Department of Energy

Attachment I Budget

PERSONNEL/SERVICES COST

FY 2006 BUDGET

1.	DOE Administrative Charge	$ 750 (3%)
2.	Total Costs	$ 24,250
3.	Total Funds Requested.	$ 25,000

Payable Agreement Checklist and Instructions

06FED6I141

ection	Info Required	Instructions	Info Source	CIO	FMO
1.0	**CDC IAA #**	Enter the CDC IAA #. This is manually generated using the following nomenclature: aabbbccccc, where: a = fiscal year of agreement (two digits) b = "FED" c = unique tracking number (each CIO is given a range of numbers to use for each fiscal year)	Program Staff	√	
2.0	**Participating Agency IAA#**	Enter the Participating Agency IAA or PO #. The Participating Agency is that agency that the CDC will do business with.	Participating Agency / Statement of Work (SOW)	√	
3.0	**Type of Agreement**	Select one of the following: New, Modification or Administrative. Select "Administrative" if making the following changes to an existing agreement: • CIO or Participating Agency contact information • CDC Funding information	SOW	√	
3.1	**Modification Number**	If agreement is a modification, enter the Modification Number.	SOW	√	
4.0	**Title of Project**	Enter Title of Project.	SOW	√	
5.0	**Description of Work**	Statement of Work should be **attached to the Form 1270** and should include: a) Background b) Purpose c) Description of the services, supplies, and /or equipment to be purchased: (MUST meet specificity requirements of 31 U.S.C. 1501 (see Chapter 7 of GAO Appropriation Law "Redbook")) d) Responsibilities of each agency e) Additional program and financial contact persons as needed	Program Staff	√	
6.0	**Amount**	If the agreement is new, enter the full agreement amount. If the agreement is a modification, then enter the amount of the modification only: For example, if the agreement is a reduction, enter the amount that the agreement has been reduced by. If the agreement is an increase, enter the amount that the agreement has been increased by.	SOW	√	
7.0	**Name & Address of Participating Federal Agency**	Enter Name & Address of Participating Federal Agency: • For the Name, please enter the "parent" agency and "children" centers, departments, or offices. • Name example: Department of Health and Human Services (HHS)/Health Care Financing Administration (HCFA)/Centers for Medicare & Medicaid Services (CMS)	SOW / Participating Agency	√	

Payable Agreement Checklist and Instructions

Section	Info Required	Instructions	Info Source	CIO	FMO
.1	**Liaison Information (Participating Agency)**	Enter Participating Agency Liaison's name, email address, phone #, and fax #.	SOW / Participating Agency	√	
8.0	**Name & Address of CDC Center, Institute, or Office**	Enter Name & Address of CDC Center, Institute, or Office.	SOW	√	
8.1	**Liaison Information (CDC)**	Enter CDC Liaison's name, email address, phone #, and fax #. This person should be the Project Officer.	SOW	√	
9.0	**Project Period**	Enter the Project Period. The project period is the period of time that the IAA is approved for support.	SOW	√	
9.1	**Funding Period**	Enter the Funding Period. The budget period is the period of time that an appropriation is available for obligation.	SOW	√	
10.0	**CDC Authority**	Select *Economy Act* or *Other*. If *Other* is selected, specify applicable authority.	FMO Budget Analyst	√	
11.0	**Participating Agency Authority**	Enter the Participating Agency's legislative authority.	SOW / Participating Agency	√	
12.0	**CDC Funding Information**	Enter: • Fiscal Year • Document Number • CAN • Object Class • BACS • Amount • Appropriation Number	FMO Budget Analyst	√	
12.1	**Fiscal Year**	Enter the fiscal year that is to be charged.	FMO Budget Analyst	√	
12.2	**Document Number**	Enter the 10 - digit document number. This is the CDC IAA Agreement # from Section 1.	FMO Budget Analyst	√	
12.3	**CAN**	Enter CAN to be charged.	FMO Budget Analyst	√	
12.4	**Object Class**	Enter the 5 -digit object class.	FMO Budget Analyst	√	
12.5	**BACS**	Enter the 10 - digit budget activity code segment.	FMO Budget Analyst	√	
12.6	**Amount**	Enter the amount to be charged to the CAN.	FMO Budget Analyst	√	

Payable Agreement Checklist and Instructions

Section	Info Required	Instructions	Info Source	CIO	FMO
12.7	**Appropriation Number**	Enter the appropriation number.	FMO Budget Analyst	√	
13.0	**Participating Agency Billing Requirements**	Enter participating agency's Agency Location Code (ALC).	Participating Agency / SOW	√	
13.1	**Billing Frequency**	Select billing frequency: Monthly, Quarterly, or Immediate.	SOW	√	
14.0	**Additional Billing Requirements**	If there other billing requirements in addition to the ones listed in Section 13, then list them in this section (Section 14).	Request from Participating Agency	√	
15.0	**Participating Agency Budget Contact**	Enter Name, telephone number and email address of contact person.	Participating Agency / SOW	√	
16.0	**Common Rule**	Indicate whether or not participating agency is a signatory to the Common Rule.	Program Staff	√	
17.0	**Other Requirements**	These are terms that apply to all receivable agreements, where applicable. No action is required for this section.	N/A	√	
18.0	**CDC Acceptance**	Enter name, title, email address, signature, and date. Since agency agreements are essentially contractual in nature, there must be a proposal by one component and an acceptance by another. Once the proposal has been agreed upon, approval must be conveyed by all parties signing the agreement. Only then can funds be obligated. The delegation of authority (Refer to Appendix XII– Delegations of Authority of Budget Execution SOP for more information) from the Director, CDC, to authorize agreements within CDC and between the CDC and other entities (both interagency and Intra-CDC) is set forth in CDC delegations of authority. **The responsibility for the agreement rests primarily with the CIO; however, CIO staff may wish to seek FMO and/or legal advice before entering into an agreement.**	CIO staff with proper authority	√	
19.0	**Participating Agency Acceptance**	Enter name, title, email address, signature, and date. 7/5/01	Request from Participating Agency		
	Reviewed:	**FMO Budget Analyst Signature:**	FMO Budget Analyst	DATE: 8/16/01	

Determination and Findings (D&F)
Regarding Interagency Agreement Request
Between the Centers for Disease Control and Prevention
National Center for Environmental Health
Division of Laboratory Sciences
And
The Department of Energy
Oak Ridge National Laboratory
Quality Services Division
Intercomparison Studies Program

1. Under the terms of this agreement, Oak Ridge National Laboratory (ORNL) will prepare biological materials (spiked human urine) and aqueous standards containing radionuclides of interest to Centers for Disease Control and Prevention (CDC), aliquot the materials into appropriate containers, and ship these materials to CDC following all Department of Transportation (DOT) regulations. These materials will be used for calibration and multiple levels of bench quality control for CDC analysis of these radionuclide isotopes. This Interagency agreement will enable CDC to meet high priority national public health interests related to potential adverse health effects from exposure to these radioactive elements.

   Over the course of this agreement, ORNL will provide some or all of the following services for CDC:

   Provide quality control material(s) and aqueous solutions of radionuclides of interest suitable for use in calibration or evaluation of precision/accuracy of CDC radionuclide analytical measurement systems. These control materials will have reference target values established by ORNL by alpha, beta, and gamma counting, or more than one of these procedures.

2. This D&F is based on the provisions of the Economy Act, 31 U.S.C. 1535
3. We reference the proposed CDC-ORNL FY06 IAG (attached)
4. ORNL is the only agency in the United States currently utilizing human urine, on a consistent basis, as a matrix for spiking radioactive materials. All other known providers of materials requested in this interagency agreement utilize "synthetic" urine, which has properties that are not analytically equivalent to real human urine for the analytical methods utilized or being developed in the Division of Laboratory Sciences, NCEH, CDC.

Signed:

Ted J. Meinhardt, Ph.D.
Deputy Director, NCEH, Division of Laboratory Sciences
Date: 6/06/06

William S. Ryan, Jr., Contracting Officer
Date: 6/14/06

Department of Energy, Oak Ridge Office
Work for Others Funding Obligation

Sponsor Name: COC ORNS
Sponsor Funding Document No. 06FED64141
Sponsor Funding Document Amendment No. —
Sponsor Signature Date: 7/12/06

DOE Project No. 2220-S773-A1
Contractor Internal Activity No. YBAS773203
Project Title: Dep. of Standards & Biologic Quality Control Materials
Project Type: Federal

Action: New Funding
Obligation Amount (Increment or Decrement): $25,000.00
Period of Performance: 9/30/06 Fixed X Estimated o

Fund Amount: $25,000.00
FAC Amount: 728.16
Contract Amount: $24,271.84

The Department of Energy has executed the above interagency agreement. UT-Battelle is authorized to conduct the project in accordance with the interagency agreement. Any funding amounts cited above are obligated into the UT-Battelle contract for reimbursable work.

Consistent with the Department of Energy's (DOE) full cost recovery policy, DOE collects, as part of its standard indirect cost rate, a Laboratory Directed Research and Development (LDRD) cost. Based on the amount of funds accepted for this project, $ 500.00 represents an estimated amount that will be used for LDRD efforts. The Department of Energy believes that LDRD efforts provide opportunities in research that are instrumental in maintaining cutting-edge science capabilities that benefit all of the customers at the laboratory. The Department will conclude that by providing funds to DOE to perform work, you acknowledge that such activities are beneficial to your organization and consistent with appropriations acts that provide funds to you.

DEPARTMENT OF HEALTH & HUMAN SERVICES

Public Health Service

Centers for Disease Control
and Prevention (CDC)
Atlanta GA 30341-3724

Ms Teresa Hope
Department of Energy
Oak Ridge Office
200 Administration Road
Oak Ridge, TN 37831

Reference: 06FED64141

Dear Ms. Hope:

I am forwarding the interagency agreement between the National Center for Environmental Health and the Department of Energy. This agreement provides funds in the amount of $25,000 for project title Preparation of standards and biologic quality control materials and consultative services.

Two copies of the document are enclosed. Please review and, if you agree, sign both copies. One copy is to be retained by your agency; the other is to be returned to one of the addresses below:

Federal Express: NCEH/ATSDR
Attention: LaShonda Billingsley, OFAS (M/S E-28)
1825 Century Boulevard, Century Center,
Atlanta, GA 30345.

U. S. Postal Service: NCEH/ATSDR
Attention: LaShonda Billingsley, OFAS (M/S E-28)
1600 Clifton Road, N.E.
Atlanta, GA 30333

Please reference **06FED64141** in future correspondence relating to this agreement. If you have any questions regarding the administrative management of this agreement, please contact LaShonda Billingsley at (404) 498-0275.

Sincerely yours,

for Carol H. Aloisio, M.P.A.
Director, Office of Financial and
Administrative Services, NCEH/ATSDR

Appendix E

DEPARTMENT OF HEALTH AND HUMAN SERVICES (DHHS)
CENTERS FOR DISEASE CONTROL AND PREVENTION (CDC)
ATLANTA, GEORGIA 303413724

FY 2006

INTERAGENCY REIMBURSABLE AGREEMENT (IRA) BETWEEN
The Centers for Disease Control and Prevention (CDC)
And
The Sandia National Laboratories (SNL)

TITLE:
RADIOACTIVITY IN URINE BY LIQUID SCINTILLATION
SNL Proposal: 103060222

THIS MEMORANDUM SETS FORTH THE TERMS AND CONDITIONS OF AGREEMENT FOR SERVICES TO BE PROVIDED

FOR: (CDC)
Inorganic Toxicology and Nutrition Branch
Division of Laboratory Sciences
National Center for Environmental Health
Centers for Disease Control and Prevention
DHHS
Atlanta, GA 303413724

BY: (DOE/NNSA/SSO)
Attn: Contracting Officer
P. O. Box 5400
Albuquerque, NM 87185-5400
(SNL Under DOE/NNSA contract)
Radiation Protection Sample Diagnostics (RPSD)
Sandia National Laboratories (SNL)

PURPOSE: Events have occurred in the past that resulted in or could have resulted in inadvertent uptake of radionuclides by fairly large populations. The technology associated with these events has (like all advances in technology) produced both positive and negative results. Some positive examples:

- Deeper understanding of subatomic physics
- The radio-pharmacology of tracers and cancer treatments
- Tools for mineral prospecting and non-destructive industrial testing
- Interplanetary exploration

- Food and spice preservation,
- Nuclear energy
- The expedited ending of World War II and the nuclear deterrence of the Cold War.

A potential negative result of this technology is that concentrated radioactive materials have become ubiquitous in our time. It is conceivable that persons with ill intent may obtain radioactive material for use in terrorism. Such terrorism may result in uptakes of radioactive material by fairly large populations. Should a population receive an uptake, valuable information might be obtained by quickly screening the urine of a sample of the population? Some example questions are:
Are radionuclides present or not present in the urine?
If radionuclides are present, what are the activity levels (concentrations)?

The Liquid Scintillation Process
In LSC, a liquid/urine sample is usually mixed with a chemical cocktail which scintillates (produces light) in the presence of radioactivity of alpha or beta nature. The characteristics of the scintillation can tell much about the radioactivity. Most easily, the scintillation can determine whether the radioactivity is due to an alpha or beta emitter based on the light pulse. Less easily, the scintillation can roughly measure the energy of the alpha particle, a possible signature of the nuclide(s) present (though this method is crude compared to other methods of alpha energy measurement). Discrimination is key to identification and quantification of the nuclide(s) present or not present. The LSC machines commercially available often have an adjustable discriminator (alpha/beta separation) as an option. RPSD utilizes the Tricarb line of LSC machines. Another key characteristic is the cocktail and its behavior in contact with the sample. This is known in LSC radiological measurement as quench. In other words, the chemistry of the sample affects the ability of the cocktail to scintillate, and how it scintillates. This is a function of the chemical makeup of the sample which in the case of urine can vary widely from person to person and for a particular person from day to day. Quench is key to identification and quantification of the nuclide(s) present or not present. In general, quench effects make quantification and identification difficult. Also in general, larger volume samples enhance the ability to detect radioactivity but the enhancement at some point will be offset by quench effects. Finally, longer count duration enhances the ability to detect radioactivity but at the expense of the rate of sample through-put. Most users of these machines know beforehand what nuclides they expect to be present (or not present) in samples. Therefore users tend to calibrate their instruments to respond optimally to their nuclides of concern. At the request of the CDCP we will concentrate our study on single alpha emitters Pu-239, Cm-244, and Th-230 in addition to beta emitters Cs-137, and Sr/Y-90. The study will not involve radiochemical separations therefore mixtures of multiple beta and/or alpha emitters will not be assessed.

Again, RPSD understands that the CDCP may have a desire to quickly obtain information about the radiological characteristics of the urine of a sample of a population.

To develop these guidelines we propose studying the following relationships:

- Optimum discriminator setting as a function of multiple combinations of alpha and beta energies

- Quench values encountered for typical urine samples through a study of historic samples
- Quench as a function of sample volume for typical urine
- MDA as a function of sample volume
- MDA as a function of sample count time
- Time requirements for both sample preparation and analysis
- Effect on reported sample activity found when varying discriminator settings away from their optimum.

I. Services Provided:

SNL Tasks and Responsibilities

The Radiation Protection Sample Diagnostics (RPSD) program at Sandia National Laboratories (SNL) understands that the Center for Disease Control and Prevention (CDCP) is contemplating these questions. RPSD has been analyzing urine for radiological dosimetry purposes for many years utilizing the technology of liquid scintillation counting (LSC).

The Radiation Protection Sample Diagnostics program at Sandia National Laboratories proposes a LSC study which will involve varying the following parameters:

- Discrimination
- Quench
- Volume
- Count duration.

Study of these parameters will ultimately give guidelines for analyzing urine for radionuclides by liquid scintillation. The guidelines should help the user balance speed of obtaining useful information against other considerations such as the lower bound of the amount of radioactivity it is desired to detect (the minimum detectable activity or MDA).

Over the course of this agreement, SNL will perform some or all of the following services for CDC:

1) Determine twelve optimum discriminator settings for multiple alpha/beta combinations:
Alpha emitters Pu-239, Cm-244 and Th-230 each versus:
Beta emitters H-3, Ni-63, Cs-137 and Sr/Y-90 each.

2) Determine quench value distribution for urine by studying historical data gathered by RPSD. This will determine the key information of what is typical urine.

3) Determine counting efficiency of the LSC versus quench for two alpha/beta combinations Pu-239 / Sr-90 and Cm-244 / Cs-137.

4) Using typical urine, determine a relationship between sample quench and sample volume.

5) Using water, determine relationship between sample volume and MDA.

6) Using 4) and 5) above, attempt to determine a relationship between sample volume of typical urine and MDA.

7) Using typical urine and practical volume based on 6) above, determine a relationship between MDA and count time.

8) As an objective report, analyze capabilities of quantifying nuclides when discriminator settings are other than optimum.

9) As a subjective report, analyze probable time requirements for sample receipt, analysis, and reporting. The results of these studies will be presented as compiled data and a Microsoft PowerPoint Presentation (or similar format).

In addition to the studies listed above, RPSD personnel will provide CDCP on-site training on the theories of alpha/beta discrimination and calibration techniques RPSD utilizes. These theories and techniques may or may not be adaptable to the instrumentation the CDCP is currently using. This proposal also does not involve the development of software or special modifications to the RPSD spreadsheets for use with the CDCPs current LSC machines. The training will only involve the RPSD theory of alpha/beta discrimination and explanation of the software program used for RPSD alpha/beta calibrations.

II. Proposed Timeline for Completion of Additional Tasks:
Scope of Work for FY 2006 (with the end of the project expected March 30th, 2007)

1) Determine twelve optimum discriminator settings for multiple alpha/beta combinations:
Alpha emitters Pu-239, Cm-244 and Th-230 each versus:
Beta emitters H-3, Ni-63, Cs-137 and Sr/Y-90 each.

2) Determine quench value distribution for urine by studying historical data gathered by RPSD. This will determine the key information of what is typical urine.

3) Determine counting efficiency of the LSC versus quench for two alpha/beta combinations Pu-239 / Sr-90 and Cm-244 / Cs-137.

4) Using typical urine, determine a relationship between sample quench and sample volume.

5) Using water, determine relationship between sample volume and MDA.

6) Using 4) and 5) above, attempt to determine a relationship between sample volume of typical urine and MDA.

7) Using typical urine and practical volume based on 6) above, determine a relationship between MDA and count time.

8) As an objective report, analyze capabilities of quantifying nuclides when discriminator settings are other than optimum.

9) As a subjective report, analyze probable time requirements for sample receipt, analysis, and reporting. The results of these studies will be presented as compiled data and a Microsoft PowerPoint Presentation (or similar format).

III. REPORTING REQUIREMENTS

A. SNL will provide reports to the CDC Project Officer verbally on an "as needed" basis and a written annual report of activities under this Agreement will be provided at the close of each fiscal year.

C. CDC and SNL personnel will meet periodically, at a time and place mutually agreeable, to discuss program design, problems, logistics, and future activities.

IV. CDC Tasks and Responsibilities:

Over the course of this agreement, CDC will perform some or all of the following services for SNL:

1) Provide pooled urine specimens to SNL (if needed) which are low in natural (or anthropogenic) radionuclides.

2) Make data and other findings available to SNL in areas of mutual interest. This could include, but is not limited to, manuscripts and drafts of research publications, laboratory data or other findings.

V. Period of Service

This agreement covers services to be provided during FY 2006 (work to be completed March 30th, 2007) for the Research and development of an analytical laboratory method for the detection and quantification of radionuclides, listed above, on urine. It is anticipated that this agreement will form the basis for collaboration between CDC and SNL for the analysis and interpretation of human exposures related to public health investigations and studies during FY 2006 and possible future fiscal years, pending availability of funds.

VI. Other Stipulations

1) The resulting agreement from this proposal may be amended by Memorandum of Modification signed by authorized officials of both agencies. If the contract period is extended or if additional services are provided by SNL, CDC will provide funds sufficient to cover expenditures incurred by CDC. The cost will be determined at the time of modification. Any changes in deliverables that do not affect the scope of work or the budget will be communicated with the PI in writing, with a copy sent to the Program Manager

2) Title to all nonexpendable property acquired by SNL from funds allotted under this agreement shall vest and remain with SNL.

3) This agreement does not modify existing agreements nor does it preclude entering into separate agreements.

4) Nothing in this agreement is intended to diminish or otherwise affect the authority of either agency to carry out its respective statutory functions.

5) This agreement can be unilaterally terminated by CDC or SNL upon 30 days prior written notice to the signers of this agreement.

6) All travel under this proposal is subject to allowances authorized in accordance with the Federal Travel Regulations, the Joint Federal Travel Regulations, and/or the Foreign Service Regulations.

ESTIMATED END DATE:
March 30, 2007

ORGANIZATIONAL CONFLICT OF INTEREST MANAGEMENT:

The sponsor recognizes that Sandia National Laboratories will perform the work assigned to DOE under this project pursuant to the "Non-Department of Energy Funded Work" provision of the DOE/Sandia Corporation contract for the management and operation of Sandia National Laboratories. The DOE-approved Sandia Corporation OCI Management Plan governing access to and flow of information between Sandia Corporation and its Lockheed Martin affiliated corporate entities will apply to all work performed under the terms of this project. This Sandia Corporation OCI Management Plan and the procedures resulting from the plan are subject to DOE audit at all times. A copy of the Sandia Corporation OCI Management Plan is available upon request to David L. Goldheim, Corporate Business Development and Partnerships Center, MS-0185, Sandia National Laboratories, Albuquerque, NM, 87185, (505) 845-7730.
In accordance with the Organizational Conflicts of Interest terms of the DOE/Sandia Corporation contract, Sandia Corporation, including any of its officials who may acquire information as part of their management responsibilities, is prohibited from further disseminating any third-party proprietary data or government sensitive data or information (as indicated by restrictive markings identifying the data and information so protected) to its Lockheed Martin affiliated corporate entities.

In view of the above, the sponsor hereby agrees that Lockheed Martin affiliates of Sandia Corporation shall not, due to their organizational relationship with Sandia Corporation, be precluded from bidding on and competing for follow-on contracts or subcontracts to be awarded by the sponsor that relate to the work under this project.

RECORDS/REPORTS DISPOSITION:

All project records and files will be turned over to the sponsor after completion of the final report.

PROPERTY/EQUIPMENT DISPOSITION:

If property is acquired as part of the sponsor's project, such property will be accounted for and maintained during the term of the agreement in the same manner as DOE property. When the work is completed, Sandia National Laboratories will retain the property.

VII. PROJECT OFFICERS and Leaders AND LOCATIONS

For CDC

Management

Theodore J. Meinhardt, PhD
Deputy Director for Management and Operations
Division of Laboratory Sciences, NCEH
Centers for Disease Control & Prevention
4770 Buford Hwy NE MS F-20
Atlanta, GA 30341-3724 USA
Ph: 770-488-4579 FAX: 770-488-4839
E-mail: TMeinhardt@cdc.gov

Technical

Robert Jones, Ph.D.
Chief, Inorganic Toxicology Laboratory
National Center for Environmental Health
Centers for Disease Control and Prevention, DHHS
4770 Buford Hwy NE, MS F18
Atlanta, Georgia 30341-3724
Ph: (770) 488-7991, FAX (770) 488-4097
E-mail: RLJones@cdc.gov

For NNSA

DOE/NNSA/SSO
Attn: Contracting Officer
P.O. Box 5400
Albuquerque, NM 87185-5400
Ph: 505-844-8008, fax 505-844-8616
E-mail: mecocco@sandia.gov

For SNL

Program Office

Mary Cocco
Sandia National Laboratories
P.O. Box 5800 MS-0115, Albuquerque, NM 87185-0115
Ph: 505-844-8008, fax 505-844-8616
E-mail: mecocco@sandia.gov

Project Leader

Robert P. Reese
(505) 844-6566 RPREESE@SANDIA.GOV

Technical Staff Member
RPSD Program
Sandia National Laboratories
Ph: (505) 665-5059, Fax: (505) 665-2052
E-mail: rpreese@sandia.gov

VIII. AUTHORITY

This agreement is entered into pursuant to the authority of the Economy Act of 1932, as amended (31 United States Code 1535) [or other statutory authority references], and adheres to Federal Acquisition Regulation (FAR) 6.002.

IX. Attachments

PERSONNEL/SERVICES COST

Robert P. Reese, principal investigator, provides overall scientific basis for analytical method development.

Travel: A total of 2 person-trips to CDC Atlanta are planned within the period of performance of this contract. This is envisaged to be one trip with two persons each. The purposes, which are under the authority of CDC, will likely be for instructing CDC staff on the use of the SNL-developed analytical method.

*Other individuals involved in this project are not named because the analytical personnel changes depending on the type of analysis required. The time and effort for these individuals are reflected in the cost of analysis (section F).

Funding Profile and Cost Estimate (in $K)

Work will begin at Sandia Laboratories upon receipt of authorization from the NNSA, to proceed with the proposed project. The cost estimate for the proposed project is shown below. If funding is received three months or more after the proposed start of the project, the cost estimate is subject to revision.

Proposed Project Start Date: **upon receipt of funds anticipated July 2006**	Proposed Project End Date: **March 30, 2007**

	FY2006
Sandia Labs Cost Estimate	82.6
DOE/NNSA Admin. And Continuity Charges[1]	11.5
Total Costs + DOE/NNSA Admin. Charge	94.1
Total Funds Requested	$94.1K

The Department of Energy requires that Sandia National Laboratories request from other federal agencies funding for the first fiscal year plus the first three months of the following year if the work transcends fiscal years. Consistent with DOE's full cost recovery policy, DOE collects, as part of its standard indirect cost rate, a Laboratory Directed Research and Development (LDRD)

cost. Based on the estimated SNL costs for this proposal, $7.1K represents the amount that will be used for LDRD efforts.

Counter Terrorism/Homeland Security: SNL has verified with the sponsor that this work is directly related to counter terrorism and homeland security activities of the sponsor.

Export Controls

"Unless specific national security controls (e.g., information classification guides and/or prepublication reviews) are required and specified in detail elsewhere in this contract, the research to be performed under this contract shall be considered "fundamental research" as defined in National Security Decision Directive 189* and (funding agency name) hereby approves the information and technical data resulting from the research for public release.
When specific national security controls are required, that part of the research/information/ technical data outside the "specific national security controls" shall be considered "fundamental research" and approved for public release.
*BSDD 189 defines fundamental research as "basic and applied research in science and engineering, the results of which ordinarily are published and shared broadly within the scientific community, as distinguished from proprietary research and from industrial development, design, production, and product utilization, the results of which ordinarily are restricted for proprietary or national security reason.

Project Management

Upon **project completion**, the Close-out Procedures must be finalized (See attached forms which accompany both the WFO Proposal Forms as well as the WFO Proposal Package Instructions and Steps for DOD for your convenience and utilization).

HSR Issues

The work being done for this project will require the use of the same type of chemicals that we currently use for our research. For example, chloroform and methylene chloride will be used and we have already been approved for use of these chemicals in our lab. The quantities used fall within the acceptable limits under which we currently operate. This work will be performed in TA-35-85.

Classification and Security

This project will not involve generating or handling classified information or materials at Sandia National Laboratories.

X. CDC AND SNL SIGNATURE OF APPROVAL

A. DEPARTMENT OF HEALTH AND HUMAN SERVICES
PUBLIC HEALTH SERVICE
CENTERS FOR DISEASE CONTROL AND PREVENTION
ATLANTA, GEORGIA 30333

By (signature):_____ Date:_____

Name: _____, MD, MPH

Title: Director, National Center for Environmental Health
Centers for Disease Control and Prevention
Department of Health and Human Services

B. DEPARTMENT OF ENERGY
NATIONAL NUCLEAR SECURITY ADMINISTRATION
Contracting Officer
P.O. Box 5400
Albuquerque, NM 87185-5400

By (signature):_____ Date:_____

Name: _____

This is to acknowledge the receipt of your letter/application dated

3/8/2007, and to inform you that the initial processing which includes an administrative review has been performed.

☑ Amend. 10-06772-01
There were no administrative omissions. Your application was assigned to a technical reviewer. Please note that the technical review may identify additional omissions or require additional information.

☐ Please provide to this office within 30 days of your receipt of this card

A copy of your action has been forwarded to our License Fee & Accounts Receivable Branch, who will contact you separately if there is a fee issue involved.

Your action has been assigned **Mail Control Number** 140211.
When calling to inquire about this action, please refer to this control number.
You may call us on (610) 337-5398, or 337-5260.

NRC FORM 532 (RI)
(6-96)

Sincerely,
Licensing Assistance Team Leader